allocations below 100,000 units -- have a declining balance each year," Clock said. "The first few years of RECLAIM did not affect these companies a great deal, but as the 1996 reconciliation period approached, more companies saw the need to purchase credits. These firms represent all sectors of light, medium and heavy manufacturing. They are now finding that strategic planning is essential not only for compliance, but also to ensure that their operations are not hindered. Market participation plays a key role in the planning process.

New Innovations and Future Markets

ACE recently developed a new method to further simplify buying RTCs. Bidders can now enter an order to purchase RTCs to cover emissions over a specific time period. ACE's custom software then calculates the most affordable mix of RTCs to meet a trader's specified goal. This new feature alleviates the need for a buyer to guess which credits will achieve compliance at the best market prices.

The next market for RTCs and ERCs is scheduled for April 21-25, 1997. ERC markets are held monthly on an as-needed basis. Interested parties should call 800-615-1504 for more information.

ACE -- comprised of a consortium of economists and environmental consultants -- is the world's only interactive, electronic environmental exchange, with clients able to enter bids and observe market activity over the Internet. ACE has a partnership with the Pacific Stock Exchange, who maintains holding accounts and completes the transfers of emissions credits between buyers and sellers, among other market functions. First Trust Bank provides funds escrow accounts for market participants.

SOURCE Automated Credit Exchange

CONTACT: Seth Jacobson, 310-589-9996, or Geoffrey Martin, 310-541-7400, both of ACE

LANGUAGE: ENGLISH

LOAD-DATE: March 1, 1997

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December 6, 1996

SECTION: EMISSIONS TRADING; SO2 Allowance Outlook; Pg. 9

LENGTH: 586 words

HEADLINE: ACE 'RECLAIM' EMISSION CREDIT AUCTION INDICATES MAJOR INTEREST CALIF.

xON

BODY:

Prices for nitrogen oxide emission credits continued to climb in the Automated Credit Exchange's (ACE) recent auction for the California Regional Clean Air Incentive Market (RECLAIM).

NOx prices exceeded \$ 2,000/ton for the first time, while sulfur oxide emission prices remained about what they were in the firm's last auction in August, where they reached \$ 2,000/ton (UER, 13 Sept, 9).

There were more than 4.8 million NOx and SOx RECLAIM credits sold, almost double the August auction where 2.5 million credits were sold. Twenty-two companies participated in this ACE auction, compared to 38 in August.

RECLAIM is the emission reduction program for utilities and other companies created by California's South Coast Air Quality Management District. ACE, which is based in Pasadena, created an electronic auction system in which participants can buy and sell RECLAIM emission credits through the Internet and modify their bids daily based on the clearing price at the end of the previous day.

Ann Sholtz, ACE's founder, said there are more sales lately because companies' environmental managers are now being allowed to bypass regular procurement policies and to buy and sell credits during the ACE market. Before, they had to go back to upper management for permission to buy or sell at prices higher or lower than anticipated.

In the latest auction, NOx prices started at \$ 554/ton for 1997 Cycle II credits and jumped to \$ 1,704/ton for 1999 Cycle II credits. Prices reached \$ 2,167/ton for 2003 Cycle II credits and held steady through 2010, when one buyer bought about 200,000 credits for each year at the same price. All these sales were for businesses located in the coastal zone and totaled 3.3 million credits -- 69% of all trading. Only 194,588 NOx credits for the inland zone were sold.

(The RECLAIM program has two cycles. Cycle 1 runs January through December each year, while Cycle II runs from July through June. The companies that are in RECLAIM are divided equally between the two cycles.) Just 173,764 Cycle I NOx credits were traded at \$ 130/ton for 1996 credits and \$ 2,037/ton for 2001 credits. Cycle I credits are usually traded in the first half of the year, while it is normal for heavy Cycle II action during the August and October ACE markets.

Utility Environment Report, December 6, 1996

Sholtz said a lot of small companies trade in the February and August markets to balance their emissions allocations. Larger, long-term buyers trade in the off-quarter markets in April and October.

SOx credit volume was one-third of that for NOx credits. A total of 1.15 million RECLAIM credits were sold for prices beginning at \$ 430/ton for 1996 Cycle II credits in the coastal zone and reaching \$ 2,142/ton for credits in 2000. One buyer bought 80,000 credits/year until 2010 at that price.

Volume for inland zone SOx credits during Cycle II was very light -- 33,579 credits -- and nonexistent for Cycle I.

Sholtz said in the next ACE auction in February, cycle-free and zone-free trading will be added. A company will be able to put in an order for a given number of credits in either Cycle I or Cycle II, and the computer will search for every possible combination that works for the six months specified by the buyer. Zone-free trading will work in the same way.

Sholtz noted that all of the major southern California utilities were participating in the ACE trading, including Southern California Gas, San Diego Gas & Electric and Southern California Edison, as were several cogeneration plant managers.

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May 21, 1996 Tuesday MORNING EDITION

SECTION: BUSINESS; Pg. C01

LENGTH: 1182 words

HEADLINE: POLLUTION FOR SALE;

ENVIRONMENT: Buying and selling smog credits is becoming significant in

long-term business planning.

BYLINE: PAT BRENNAN, The Orange County Register

BODY:

When economics professor Anne Sholtz decided she would leave her academic career to make a killing on the smog market, her colleagues predicted disaster.

The fledgling market for smog credits seemed dead on arrival.

When it opened in 1994, nothing happened; no one seemed eager to buy or sell the right to pollute.

"Both academics and nonacademics were not certain that enough trading would occur to keep a market like this going," said Sholtz, formerly of the California Institute of Technology. "But if you looked at the numbers, you could see that trading would have to occur."

The intervening years proved Sholtz right. The smog market, crafted by the South Coast Air Quality Management District as a way to cut pollution and at the same time save companies money, has become serious business.

And people such as Sholtz have found a niche in the emerging world of pollution trading at Automated Credit Exchange in Pasadena. She can earn \$ 42 to \$ 60 for every \$ 1,000 traded on her company's computerized trading system _ the only computerized trading program that determines market price among the many smog-credit brokers in Southern California. Sholtz said about \$ 7.3 million in credits were sold in the last auction.

The idea behind the smog market is fairly simple: First, place a ceiling on the amount of pollution businesses can produce, and lower the ceiling year by year. Next, issue each business a set number of credits based on its past pollution levels.

Then allow businesses to buy and sell the credits among themselves. A factory owner who needed to produce more smog than the cap allowed could buy credits _ perhaps from another factory

THE ORANGE COUNTY REGISTER May 21, 1996 Tuesday

owner down the road, who operated below the cap and had excess credits to sell.

Meanwhile, actual pollution levels would drop with each passing year, as the supply of credits shrank and prices soared.

The evidence is beginning to show that the experiment is working. Trading has increased steadily since the smog market opened. Prices have begun to rise.

Perhaps most exciting for the creators of the market, the price of credits for future years _ especially after 2001 _ has already increased sharply.

The right to produce one ton of pollution in 2002 goes for about \$ 1,500 on the current market. That's compared with anywhere from \$ 61 to \$ 100 for a 1996 credit to produce the same amount of pollution.

Business leaders in the Los Angeles basin recently met with district officials to ask for adjustments in the smog-trading market, known as RECLAIM, to ensure their credits would hold value over time.

"They feel the price of credits has become more significant in their business strategies," said Pang Mueller, the air district's senior manager in charge of RECLAIM.

Industry leaders agree that the smog market has become increasingly relevant to their long-term decision making. That's especially true of credits sold for future years.

"I've seen recent information showing the price of RECLAIM credits up to \$ 3,000 per ton," said Lyle Nelson, manager of the air-quality regulatory group at Southern California Edison. "If we buy a stream of credits for multiple years, that contributes to a valid market."

The smog credits being bought and sold are for nitrogen and sulfur oxides, pollutants commonly emitted from chemical, petroleum or utility companies. The players in the market are limited to the 353 large companies in the Los Angeles basin that produce the two types of pollutants covered in the program.

A power plant the size of Edison's Huntington Beach facility, for instance, typically emits 20-80 tons of nitrogen oxides each month. The company has sold credits in auctions held by Sholtz's company, the Automated Credit Exchange, and plans to buy and sell more in the future.

Since 1994, 15,000 tons of nitrogen oxides have been traded on the smog market for \$ 10 million, and 4,500 tons of sulfur oxides for \$ 1.7 million.

THE ORANGE COUNTY REGISTER May 21, 1996 Tuesday

"We didn't expect the large amount of volume and the high prices," Mueller said.

Despite the market's apparent success, however, there are a few worries that make its future uncertain.

Projections of rising prices assume the AQMD won't change the rules significantly by introducing new market-based programs. But the district is considering an intercredit trading program, which would include pollution from cars, trucks and other sources. If such a program included RECLAIM credits, prices would likely change unpredictably, Mueller said.

Minor adjustments also must be made from time to time to prevent unwanted drains on the market. The district recently ended its practice of linking permit fees to the number of credits a business possesses, Mueller said. That was causing businesses to dump credits on the market at the end of the year.

Now the fees are linked only to the amount of pollution the business actually produces.

The district's long-term strategy for the smog market suffered a serious setback in January. The second leg of RECLAIM, intended to bring thousands more businesses into the market by opening it to a new class of pollutants, was killed by the district board because of opposition from business owners.

And questions persist about how much the smog market contributes to the AQMD's pollution-cutting efforts, which have lagged behind federal targets in recent years. Clean-air activists are still unsure that RECLAIM really reduces smog in the Los Angeles basin, home of the nation's dirtiest air. They believe the district's efforts should be more aggressive.

"We didn't support the program when it was adopted, and the jury has been out for us, so to speak," said Linda Waade, executive director of the Coalition for Clean Air. "The air district in our opinion is way behind on doing anything. "
(SIDEBAR)

TRADING SMOG

The buying and selling of smog credits has pushed steadily upward since the smog-trading market, known as RECLAIM, opened in 1994.

Percentage increase from 1994 to 1995:

+696%

Number of trades in '95: 406

+565%

Lbs. traded in '95: 29.5 million

+560%

Value of trades: \$ 10 million

GRAPHIC: COLOR PHOTO; ILLUSTRATION; SMOG BROKER; Anne Sholtz buys and sells pollution credits at Automated Credit Exchange. She's shown at the Huntington

THE ORANGE COUNTY REGISTER May 21, 1996 Tuesday

Beach Edison plant.; Illustrations; How pollution trading works (see microfilm)

LANGUAGE: ENGLISH

LOAD-DATE: March 07, 1997

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April 13, 1995, Thursday, Late Edition - Final

SECTION: Section D; Page 2; Column 5; Business/Financial Desk

LENGTH: 620 words

HEADLINE: Market Opening on Internet For Pollution-Credit Trades

BYLINE: BY ANDREA ADELSON

BODY:

An electronic market for trading pollution credits from Southern California is to begin operating today on the Internet, offering a system that its developers believe will help businesses reduce pollution at the lowest possible cost.

Its developers, scientists from the California Institute of Technology in Pasadena, hope their automated environmental credit exchange, as it is known, will supplant a rival auction market begun last year by Cantor Fitzgerald L.P., a Wall Street brokerage firm.

Developers of the automated credit exchange said that the new system was already drawing interest from the Environmental Protection Agency and environmental regulators for several states. The supporters hope the credit exchange becomes the standard trading mechanism used in other regions that are planning to let free-market forces clean urban air through the trading of smog credits.

Credits in the chemical that causes acid rain have been traded since 1993 among utilities through the Chicago Board of Trade, but other global markets for trading credits in water and greenhouse gases are also emerging.

"The fundamental purpose of moving to a market-based approach to environmental regulation is to reduce emissions faster and more efficiently than traditional regulations," said Dale Carlson, vice president of corporate affairs for the Pacific Stock Exchange in San Francisco. The exchange will act to clear and settle trades on the credit exchange along with the Bank of America, a unit of the BankAmerica Corporation.

"This concept of using market systems is the coming trend," said Robert D. Brenner, the E.P.A.'s director of air policy. It is too early to determine whether a single system will emerge as a standard, he said, "but there's an opportunity for anyone to break into the market."

The environmental credit exchange is expected to operate one week a quarter, but trades will not be executed until the final day of the trading week. That lets participants refine their bids and find the price the rest of the market is setting by relying on analysis provided by the system's software.

The New York Times, April 13, 1995

The exchange was developed by Caltech professors, whose two companies, Sholtz & Associates and Econdesigns, will make money three ways: by charging companies a fee to participate, by selling their software, and by a commission based on the value of the trades that are made.

Ann Sholtz, a Caltech economics professor and a co-developer of the credit exchange, said Cantor's auction system left small business without access to sophisticated financial analysis at a disadvantage when buying or selling pollution credits.

Carlton W. Bartels, director of environmental brokerage services for Cantor, countered that the Caltech system was too complex and lacked customer service.

Southern California's 390 largest polluters, those that produce four or more tons a year of smog-making chemicals, must determine whether buying new technology or buying the right to pollute from someone else is the cheapest way for them to reduce emissions. The South Coast Air Quality Management District will force progress by cutting the ceiling of credits each year.

Prices for credits went for as low as one-tenth of 1 cent a pound of chemicals during the most recent auction, held in January by Cantor Fitzgerald. Such prices, conceded James M. Lents, executive officer of the air quality district, "were dirt cheap. By the second year of the program, the rubber starts to meet to road."

It is to the agency's advantage to see rival trading systems for credits emerge, he said, adding: "We want a market with lots of trades. It gives people confidence. If you don't have good trading, people will hoard credits."

LANGUAGE: ENGLISH

LOAD-DATE: April 13, 1995



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Pacific Stock Exchange
Net Exchange
JW, LLC

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RECENT PROFESSIONAL EXPERIENCE

President and Founder, Automated Credit Exchange (ACE), 1994 to present. The first fully automated electronic exchange for RECLAIM and other environmental credits. Designed to allow electronic registration and transfer with the SCAQMD regulatory listing of ownership beginning in July, 1995. First market successfully completed in April, 1995.

Visiting Olin Fellow (Environmental Policy), University of Southern California School of Law. September 1995-July 1996.

Managing Member, Sholtz & Associates, LLC. 1993 to present.

Faculty Associate. Lincoln Institute for Land Policy, Cambridge, Massachusetts. July 1994-August 1995.

Faculty, California Institute of Technology, Pasadena, California. Summer 1992-Fall 1995. Courses taught: Money and Banking, Environmental Economics, Special Topics in Environmental Analysis, and Public Finance.

Primary Investigator and sub-contracting manager, US EPA Economic Analysis Team. A four and one-half year contract to undertake several of a list of studies on economic instrument programs' efficiency, wealth impacts, air quality impacts, and design criteria for international implementation.

Primary Investigator, Economic Instruments Segment. Greater Vancouver Regional District-Lower Fraser Valley Economic Instruments Study. A study to determine which, if any instruments will work effectively for this part of British Columbia to control emissions of NOx, SOx, VOCs, Particulates, and CO. Incorporation of mobile sources into an economic incentives program is of primary concern. August 1993-February 1995.

Primary Investigator and Project Manager. Illinois EPA Emissions Trading Program for Ozone. A study to determine methods to incorporate economic instruments into the regulation of seasonal pollutants that create ozone. Originally this work focused on NOx reductions, but after the Lake Michigan Ozone Study the focus has switched to instruments to control VOCs. December 1993-present.

Primary Investigator. Goremotive Industries, Inc. Economic Benefits of CNG Vehicle Conversions with Specialized Catalytic System. This project described the types of economic benefits from an advanced catalytic system operated in conjunction with a compressed natural gas system installed in automobiles that were converted from gasoline burning systems. December 1993-February 1994.

Co-investigator. U.S. EPA Acid Rain Allowance Division, Contract #3W-2384-NASA. EPA Allowance Tracking System Database Analysis. This project analyzed the ATS for difficulties in supporting proper market structure needed for efficient trading systems. April 1993-July 1993.

Co-investigator, California Institute of Technology and Pacific Stock Exchange Team. South Coast Air Quality Management District RECLAIM Development. The purpose of this project was to develop a trading instrument that could be used in the RECLAIM program to reduce NOx and SOx. The instrument had to be valid for only one year and was not to be bankable, presenting potential market volatility problems. which our design overcame. September 1992-September 1993.

Research Fellow in Economics, California Institute of Technology, Summer 1992-Fall 1993.

Research Fellow, Environmental Topics, Center for the Study of American Business, Fall 1988-Summer 1990.

Research Assistant (Scientific position), United States Department of the Interior, Acid Rain Project at Isle Royale National Park, Summer 1982.

REFEREED PUBLICATIONS

"Trading Market Attributes: Effects on Program Performance and Compliance Costs," to be presented at the 1997 Air & Waste Management Association Annual Meeting & Exhibition, June 8-13, 1997.

"Observations for Environmental Markets: RECLAIM and Beyond," Market-Based Approaches to Environmental Policy, University of Chicago Press, Fall 1995.

"Designing Pollution Trading Instruments: Cases of Uncertainty," with Dale A. Carlson, Contemporary Economic Policy, Vol. XII, No 4. (1994) pp. 114-125.

"RECLAIM: Lessons from Southern California for Environmental Markets," with Dale A. Carlson. *Journal of Environmental Law and Practice*, Vol. 1, No 4. (1994)

"Battling Smog," with Kenneth Chilton, Chapter 3 in Environmental Protection: Regulating for Results, Westview Press, Boulder, Colorado, pp. 51-77, 1991.

"Can the Free Market Clean Up Our Air?" Business and Society Review, Fall 1990, pp. 41-43.

"A Primer on Smog Control," with Kenneth Chilton, Regulation, January 1990, pp. 31-40.

REPORTS

Economic Instruments and Their Applicability to the GVRD/LFV. Prepared for Greater Vancouver Regional District, Environment Canada, and BC Ministry of the Environment, November 1995.

IEPA Emissions Trading Program: Potential Program Instruments and Design, Prepared for the Illinois Environmental Protection Agency, March 1995.

Pre-Criteria for Assessing the Feasibility of Economic Instruments for Use in the GVRD/LFV Pollution Management Plan. Prepared for Greater Vancouver Regional District, Environment Canada, and BC Ministry of the Environment, September 1994.

The EPA's Allowance Tracking System: Database and Ownership Issues for SO2 Allowance Markets, US EPA 3W-2384-NASA. July 1993.

An Analysis of the Information and Reporting Requirements, Market Architectures, Operational and Regulatory Issues, and Derivative Instruments for RECLAIM, with Dale Carlson, Charles Forman, John Ledyard, Nancy Olmstead, Charles Plott, and David Porter, Pacific Stock Exchange, July 1993.

An Analysis and Recommendation for the Terms of the RECLAIM Trading Credit, with Dale Carlson, Charles Forman, John Ledyard, Nancy Olmstead, Charles Plott, and David Porter, Pacific Stock Exchange, April 1993.

"Acid Rain and Tradable Permits: How Congress Hobbles the Power of the Marketplace," CSAB at Washington University in St. Louis, *Occasional Paper Number 83*, May 1990.

"Battling Smog: A Plan for Action," with Kenneth Chilton, CSAB Formal Publication Number 93, September 1989, 85 pgs.

RELEVANT WORKING PAPERS AND MIMEOGRAPHS

"Utilizing a Lease Option Market to Guarantee Air Quality Implementation Plan Reductions at Lower Cost, *mimeo* for the South Coast Air Quality Management District, November 1996.

"Alternative Economic Instruments for Pollution Control," presented at the Lincoln Institute for Land Policy, October 1994.

"Property Rights Support and Associated Information Data Bases for Environmental Markets," with Charles Plott, February 1994.

"Designing Tradable Instruments to Regulate Pollution Under Scenarios with Uncertainty," with John Ledyard, November 1993.

"A Tax/Subsidy Plan for the Implementation of the Stage II Refueling Vapor Recovery System," CSAB Working Paper, 1989.

RELEVANT WORK IN PROGRESS

"Designing Economic Instruments to Regulate Seasonal Pollution Events"

"Optimal Instrument Design Using A Dual Credit/Fee System"

"Implementation of a Mobile Source Sector Instrument Program: Application of the Dual Instrument Design"

EDUCATION

Ph.D., Economics (Public Finance/ Econometrics), Washington University, 1991abd M.A., Economics, Washington University, 1988 B.A., Economics, Mathematics, Washington University, 1987

GRANTS and AWARDS

US EPA, Economic Analysis Team (various long-term projects), January 1995-September 1999.

Illinois EPA, NOx Trading in Illinois: Review and Analysis, December 1993-September 1994.

Greater Vancouver Regional District, GVRD-LFV Air Quality Management Economic Instruments Study, October 1993-December 1994.

US EPA Acid Rain Allowance Division, EPA Allowance Tracking System Database Analysis, April 1993- July 1993.

South Coast Air Quality Management District, Analysis for Regional Clean Air Incentives Market, September 1992- September 1993.

Center in Political Economy Dissertation Fellowship, Washington University, 1990-1991.

Arthur and Jeanne Ansehl Fellowship, Washington University, 1988-1989, 1989-1990.

University Fellowship, Washington University, 1987-1988.

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EDUCATION

A.B., Wabash College (Mathematics)

M.S., Purdue University (Economics)

Ph.D., Purdue University (Economics)

EXPERIENCE

Instructor, Wabash College, 1965-1966

Assistant Professor, Carnegie-Mellon University, 1967-1970

Research Associate, Northwestern University, 1969

Assistant Professor, Northwestern University, 1970-1971

Associate Professor, Northwestern University, 1971-1975

Professor, Northwestern University, 1975-1982

Sherman Fairchild Distinguished Scholar, California Institute of Technology, 1977-1978

Associate Dean, College of Arts and Sciences, 1982-1983

Sydney G. Harris Professor of Social Science, Northwestern University, 1983-1985

Visiting Professor, California Institute of Technology, 1983-1984

Professor of Economics and Social Sciences, California Institute of Technology, 1985-

Chairman, Division of the Humanities and Social Sciences, 1992-

OTHER PROFESSIONAL ACTIVITIES AND HONORS

Fellow of Econometric Society, elected 1977

Honorary Ph.D. Degree, Purdue University and Indiana University, 1993

President, Public Choice Society, 1980-1982

Executive Committee, Economic Science Association, 1986-88

Ida Beam Lecture, University of Iowa, 1988

Hooker Distinguished Visiting Professor, McMaster University, 1995-96

Associate Editor, Journal of Economic Theory, 1977-1980

Associate Editor, Journal of Economic Behavior and Organization, 1987-95

Editorial Board, Economic Theory, 1989-

Associate Editor, Economic Design, 1994-

Advisory Panel on Economics, National Science Foundation, 1978-1980

Executive Committee of the Advisory Committee for Social and Economic Science, National Science Foundation, 1980

Program Committee, World Congress of the Econometric Society, 1980

Chairman, Program Committee, North American Meeting of the Econometric Society, December 1981

National Academy of Sciences, Panel to Advise on National Science Fellowships, 1985

Economics Program Oversight Committee, National Science Foundation, 1989

EDITED BOOK

The Economics of Informational Decentralization: Complexity, Efficiency and Stability, editor, Kluwer Academic Publishers, 1995.

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- "The Paradox of Voting and Candidate Competition: A General Equilibrium Analysis." In *Essays in Contemporary Fields of Economics*, edited by G. Horwich and J. Quirk. West Lafayette, Indiana: Purdue University Press, 1982.
- "The Pure Theory of Large Two Candidate Elections." Public Choice 44 (1984):7-41.
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- "Economic Issues in the Development of New Technology," in Symposium on NASA Space Communications: Research, Development and Application. The National Academy of Science, 1987.
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- "On the Incentive Problem with Public Goods," with John Roberts. Discussion Paper No. 116. The Center for Mathematical Studies in Economics and Management Science, Northwestern University, January 1975.
- "The Allocation of Public Goods with Sealed-Bid Auctions: Some Preliminary Evaluations." Discussion Paper No. 336. The Center for Mathematical Studies in Economics and Management Science, Northwestern University, September, 1978.
- "Simultaneous Trading in Two Competitive Markets: An Experimental Examination," with Arlington Williams, Indiana University, and Vernon Smith, Arizona University. Mimeographed, December 1983.
- "Space Station Pricing Options." Economic Research Series No. 20, Jet Propulsion Laboratory, Pasadena, October 1984.
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- "An Analysis and Recommendation for the Terms of the RECLAIM Trading Credit," with Dale Carlson, Charles Forman, Nancy Olmstead, Charles Plott, David Porter, and Anne Sholtz. South Coast Air Quality Management District, April 1993.
- "An Analysis of the Information and Reporting Requirements, Market Architectures, Operational and Regulatory Issues, and Derivative Instruments for RECLAIM," with Dale Carlson, Charles Forman, Nancy Olmstead, Charles Plott, David Porter and Anne Sholtz. South Coast Air Quality Management District, July 1993.
- "Mutually Destructive Bidding: The FCC Auction Design Problem," with Mark M. Bykowsky and Robert J. Cull. Social Science Working Paper No. 916, California Institute of Technology, Pasadena, January 1995.
- "First Best Bayesian Privatization Mechanisms," with Maciej K. Dudek and Taesung Kim. Social Science Working Paper No. 896, California Institute of Technology, Pasadena, rev. April 1995
- "Interim Efficiency in a Public Goods Problem," with Thomas Palfrey. Social Science Working Paper No. 956, California Institute of Technology, Pasadena, February 1996; CREST Working Paper No. 9629, Centre de Recherche en Economic et Statistique, Institut National de la Statistique et des Etudes Economiques, Montrouge, France, February 1996.

"The Results of Some Tests of Mechanism Designs for the Allocation and Pricing of Collections of Heterogeneous Items," with David Porter and Antonio Rangel, Social Science Working Paper No. 978, 1996, submitted to *JEMS*.

RECENT PHD STUDENTS (current location)

- 1996 Robin Hanson
- 1995 Szilvia Papai (Koz, Turkey)
- 1994 Yan Chen (University of Michigan)
 John Duggan (Queens University, Canada)
 Katya Sherstyuk (Melbourne University, Australia)
- 1993 Kay-yut Chen (Hewlett-Packard Labs) Charles Polk (Innovative Market Systems)
- 1992 Charles Noussair (Purdue University)
- 1991 Mark Olson (University of Amsterdam, The Netherlands)
- 1990 Guofu Tan (University of British Columbia, Canada)

RECENT CONSULTING

Federal Communications Commission--on PCS auction design and application.

Jet Propulsion Laboratory--on various organization issues.

South Coast Air Quality Management District--(with the Pacific Stock Exchange) on the design of RECLAIM, the emissions trading system.

Hewlett-Packard Labs--on forecasting problems, supply chain issues.

Sears Logistics Systems--the design of procedures for simultaneous procurement.

EconDesigns--the design and implementation of an internet-based emmissions trading system.

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